Abdominal Wound Bundle

Michael Sugrue MB BCh BOA MD FRCSI FRACS









Disclosures

Consultancy with

Novus Scientific Smith Nephew 3M

Patents







Student/Resident Emergency Abdominal Surgery Course

Friday June 14th 2024

Venue:

AKISA Building, NKUA

ATTIKON Hospital ATHENS



Taking the Mystique out of Emergency Abdominal Conditions!

Provisional Faculty

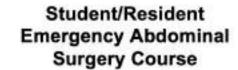
Kostas Antonopoulos, Vascular, Athens Nikos Arkoudis Radiologist, Athens Spyros Amaoutos, Surgeon, Sparta Spyridon Christodoulou, Surgeon, Athens Flora Efstathiou, Nurse, Athens Kostas Fortounis, Surgeon, Thessaloniki Jamie Guinan, Nurse, Ireland Panagiotis Kokoropoulos, Surgeon, Athens Christina Kontopoulou, Radiologist, Athens Andreas Larentzakis, Surgeon, Athens Evangelos Lois, Surgeon, Crete Thanassis Marinis, Surgeon, Piraeus Giannis Massalis, Surgeon, Nafpion Savvas Nikolaou, Radiologist, Canada Ioanna Pozotou, Surgeon, Cyprus Vicky Rapti, Nurse, Athens Anna Riley, nurse UK Maria Stafylidou, Gastroenterologist, Thessaloniki lan Stephens, Surgeon, UK Michael Sugrue, Surgeon, Letterkenny, Ireland Vivi Svardagkalou, Nurse, Athens Giorgos Tsolakidis, Intensivist Pantelis Vassiliu, Surgeon, Athens





Must attend





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Objectives

Outline incision problems in **Emergency** Abdominal Surgery Explain concept of Wound Bundle Discuss Abdominal Wall Closure bundle Creating Abdominal Wound Bundle





Incision Failure SSI

>500,000 USA Annually

Superficial Deep Dehiscence







15% **3**% **10**%

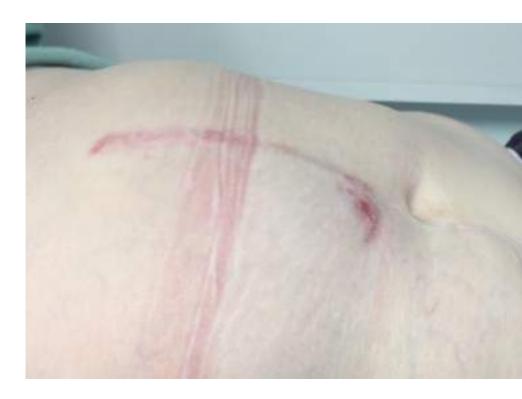


Incision Failure

Seroma Sinus Incisional hernia







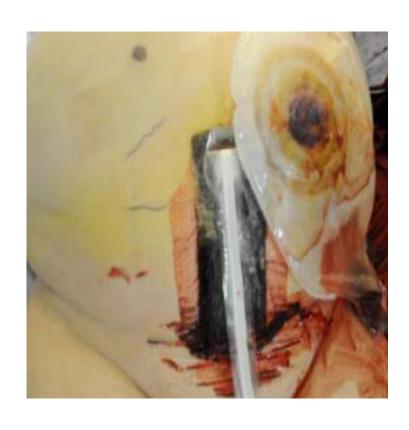


Incision Failure

Bleeding



Scarring







2%

1% 3%



Risk Factors - Modifiable and Non-modifiable

Patient Factors

Obesity (BMI >30)

Advanced age (>70yrs)

Diabetes

Immunocompromise

Smoking

Malnutrition

Shock

Disease Factors

Emergency surgery

Colorectal surgery (15-30%)

IBD (up to 47%)

Degree of contamination

Long Surgery

Conversion to Open





Bundle





Bundle Prep Time 20 min (12 elements)



China's Fantasy



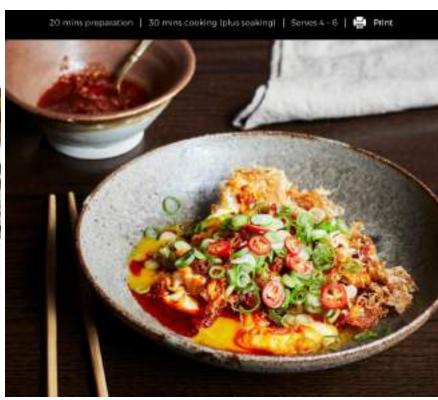
East Pearl Chinese restaurant



Wok Dragon EXPRESS



Fulihua Chinese Restaurant





Specific Wound Bundle Elements

Pre-op

Early Surgery to achieve source control

Appropriate IV Antibiotics, Dose Adjusted

Perfusion/Oxygenation

Blood Sugar < 10mmol/l

Temperature >35°C

Skin cleaning (difficulties in EGS)

Check micro profile

Safe Site Admin of Heparins

Double gloving and scrub technique

Theatre flow



Specific Wound Bundle Elements

Intra-op

Skin Shaving and Preparation

Rectal washout

Old scar excision- Tissue handing

Peritoneal Gram Stain and Culture

Peritoneal Wash

± Direct Peritoneal Resuscitation

Wound protector

Closure Tray change

Double gloving

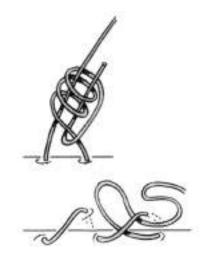
Focus on fascial closure

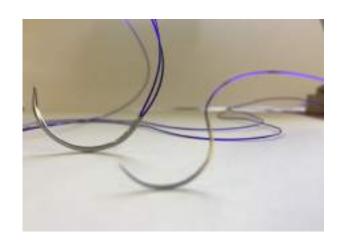


Wound Closure Bundle Elements

Intra-op Closure

Small Bites Needle size and suture technique Self locking knots 2/0 Continuous Suture Measure Suture to Wound Length White on White No of stitches documented Self Locking Buried Knot Seroma Prevention Quilting of space **Antiseptic Suture** Prophylactic Mesh placement Subcuticular Skin Closure







Step by Step of the Abdominal Wound Bundle



Wound Bundle

Laparotomy for peritonitis







Evidence?





Effectiveness of a multidisciplinary patient care bundle for reducing surgical-site infections

BJS Aug 2018

M. R. Weiser¹, M. Gonen², S. Usiak³, T. Pottinger⁴, P. Samedy⁴, D. Patel⁴, S. Seo⁵, J. J. Smith¹,

Preoperative

Appropriate antibiotic selection

Consultation for raised haemoglobin A1C level

Chlorhexidine shower

Night before surgery

Morning of surgery

Mechanical bowel preparation

Oral antibiotics

Early evening

Late evening

SSI risk assessment provided to surgeon

Intraoperative

Antibiotic administration before incision

Appropriate method of hair removal

Maintenance of normothermia†

Intraoperative antibiotic redosing

Closing tray for open procedures

Postoperative

Discontinuation of antibiotics at 24 h

Shower on postoperative day 2



Surgical Site Infection Wound Bundles Should Become Routine in Colorectal Surgery: A

Meta-Analysis

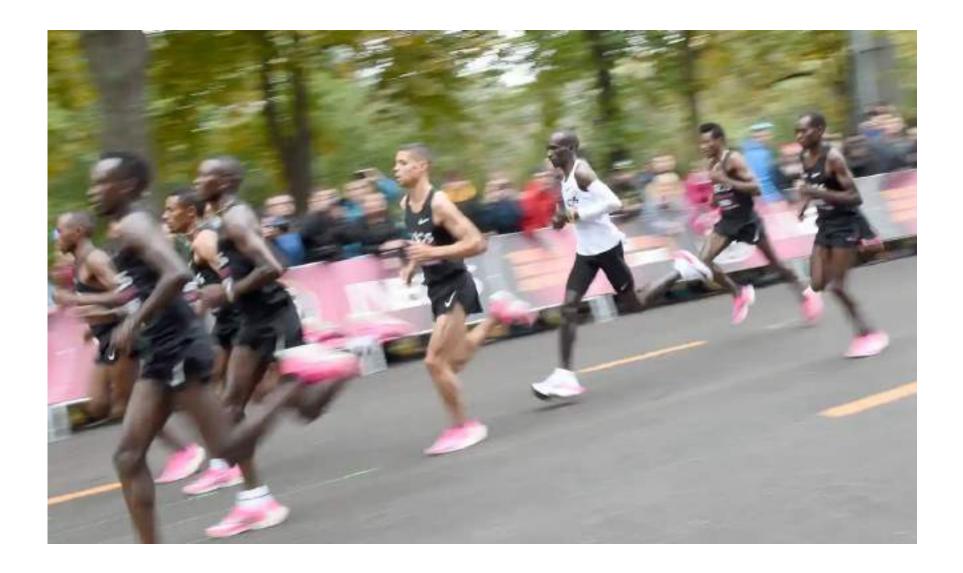
Deirdre Foley¹, Madga Bucholc², Randal Parlour³, Caroline McIntyre¹

Alison Johnston¹, Michael Sugrue³

	Wound Bundle		Control		Risk Ratio		Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
Anthony 2011	36	100	18	97	5.7%	1.94 [1.19, 3.17]	
Benlice 2016	56	1293	58	986	6.2%	0.74 [0.51, 1.05]	
Cima 2012	3	198	27	531	3.3%	0.30 [0.09, 0.97]	
Connolly 2016	25	311	89	379	6.0%	0.34 [0.23, 0.52]	
Elia-Guedea 2017	2	79	12	70	2.6%	0.15 [0.03, 0.64]	
Gachabayov 2018	25	311	89	379	6.0%	0.34 [0.23, 0.52]	
Gorgun 2018	56	1624	58	986	6.2%	0.59 [0.41, 0.84]	
Hewitt 2017	3	212	39	489	3.3%	0.18 [0.06, 0.57]	
Hoang 2018	18	459	26	436	5.4%	0.66 [0.37, 1.18]	
Keenan 2014	12	212	41	212	5.3%	0.29 [0.16, 0.54]	
Keenan 2015	18	285	31	165	5.5%	0.34 [0.19, 0.58]	
Lutifiyya 2012	7	195	65	430	4.7%	0.24 [0.11, 0.51]	
Perez-Blanco 2015	9	124	28	218	4.9%	0.57 [0.28, 1.16]	
Reames 2015	203	3119	180	2604	6.6%	0.94 [0.78, 1.14]	+
Rencüzoğulları 2018	16	498	149	1408	5.7%	0.30 [0.18, 0.50]	
Ruiz-Tovar 2018	2	99	16	99	2.6%	0.13 [0.03, 0.53]	
Schiavone 2017	5	118	20	115	4.0%	0.24 [0.09, 0.63]	
Tanner 2016	28	166	11	127	5.1%	1.95 [1.01, 3.76]	-
Weiser 2018	11	616	36	454	5.1%	0.23 [0.12, 0.44]	
Wick 2012	44	324	47	278	6.1%	0.80 [0.55, 1.17]	-
Total (95% CI)		10343		10463	100.0%	0.46 [0.34, 0.62]	•
Total events	579		1040				
Heterogeneity: Tau² = 0	0.34; Chi ^z =	121.76,	df = 19 (F	o.000	001); l² = 8	4%	0.01 0.1 1 10 100
Test for overall effect: Z	= 5.05 (P ·	< 0.0000	1)				Favours Wound buildle Favours control
							1 avours vvouria but die 1 avours control



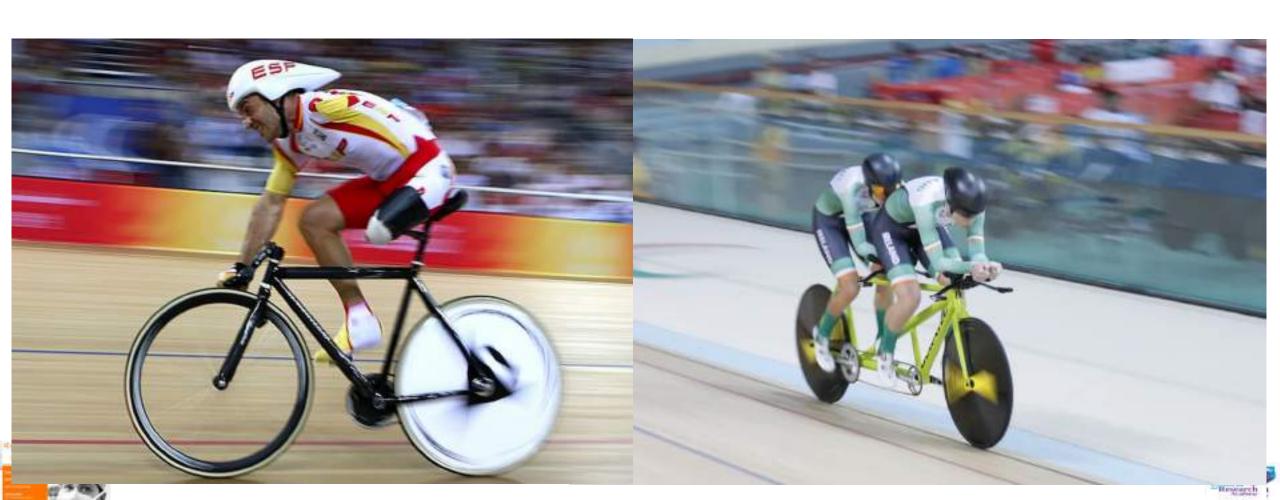
Team Work- Marginal Gains







Marginal Gains + Micro-excellence and Team Work



Not just rely on a Wound Bundle



Incision Decision Failure

ACS

Tramlining

Uncontrolled





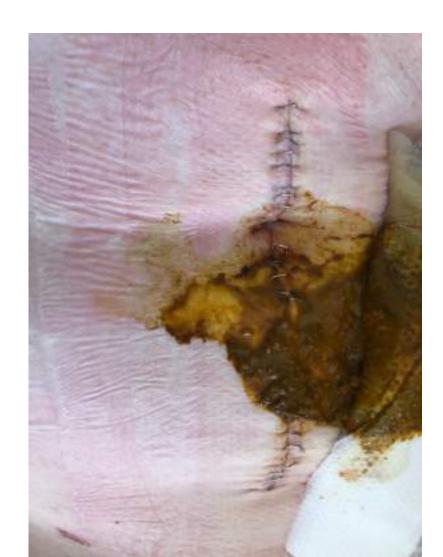




Seal Your Ostomy











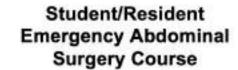
Silk?





Must attend





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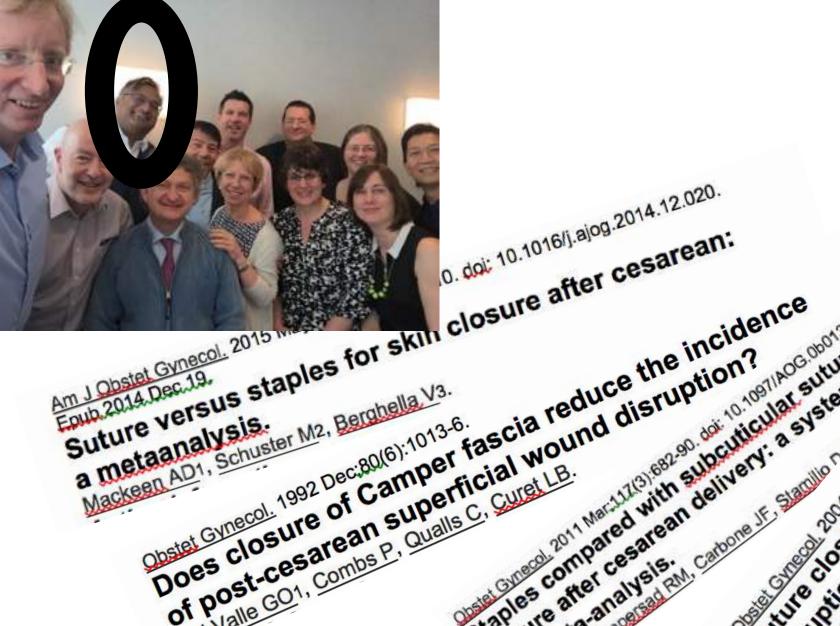


Consequences









.0. doi: 10.1016/j.ajog.2014.12.020.

Am J Obstet Gynecol. 2015 Mil

a metaanalysis.

Mackeen AD1, Schuster M2, Berghella V3. Obstet Gynecol. 1992 Dec;80(6):1013-6. Del Valle GO1, Combs P, Qualls C, Curet LB.

of Post-cesarean P. Qualls C. Curet LB.

Del Valle GO1. Combs P. Qualls C. Curet LB.

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and meta-analysis.

distriction attel casa tear, and delivery, a material delivery. Sulfure closure of subcultaneous fat and mound Staples compared with subcuticular suture for skin Closure after cesarean delivery, a systematic review Odset Greed to A Maridad Et 11:314.80. Cinality of Padridies Friday of Color of Control of Con

Surgical wound assessment by sonography in the prediction of surgical wound infections

Christopher D. Barrett, MD, Arthur Celestin, MD, MPH, Emily Fish, MD, MPH, Charity C. Glass, MD. Mariam F. Eskander, MD, Rudy Murillo, MD, Georgi Gospodinov, PhD, Alok Gupta, MD, and Carl J. Hauser, MD, Boston, Massachusetts

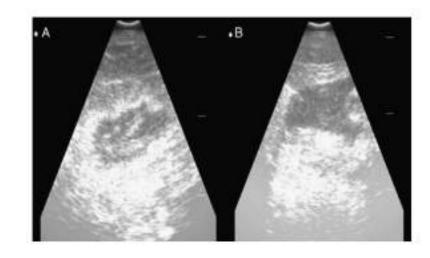


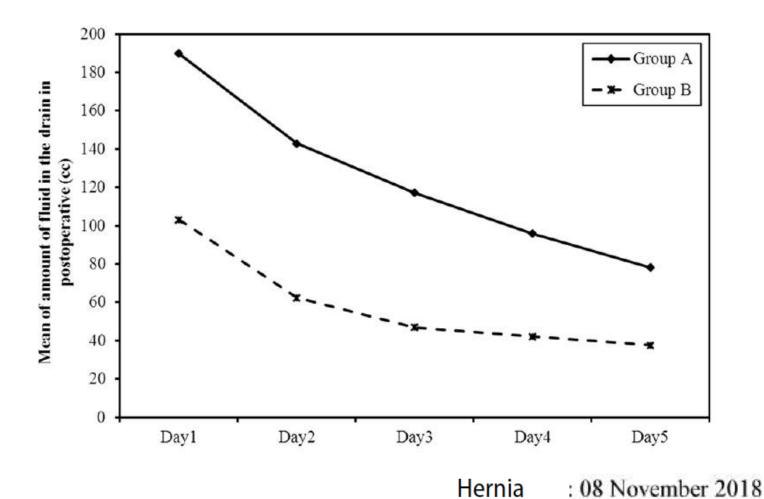
TABLE 1. SWATS Patient Characteristics

Characteristics	Fluid Collection Present (n = 19)	Fluid Collection Absent (n = 30)
Age, mean (SD)	67 (14.8)	60 (14.0)
SSI	8 (42.1%)	3 (10.0%)



Using quilting sutures in decreasing seroma formation after managing large ventral hernias: a comparative study

M. A. Alhussini¹ · A. T. Awad¹ · H. M. Kholosy²

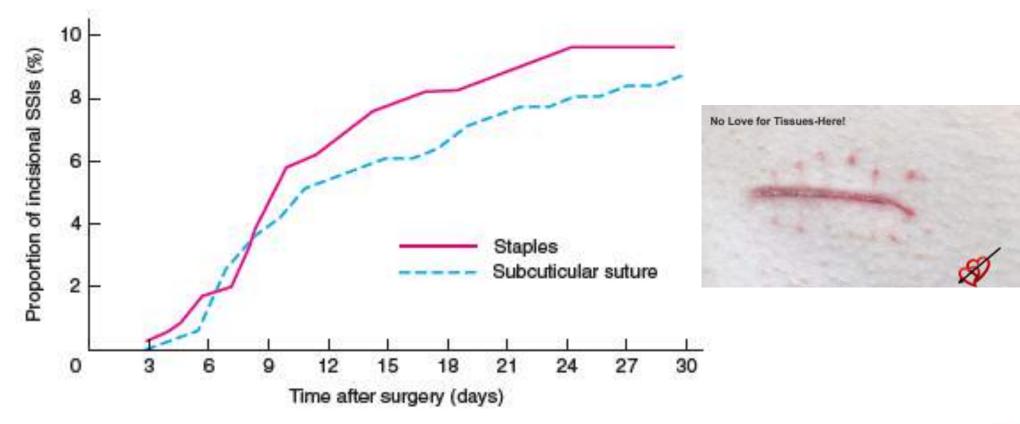




Randomized clinical trial of skin closure by subcuticular suture or skin stapling after elective colorectal cancer surgery

S. Kobayashi^{1,3,4}, M. Ito¹, S. Yamamoto², Y. Kinugasa⁵, M. Kotake⁶, Y. Saida³, T. Kobatake⁷,

BJS 2015; 102: 495-500





The role of prophylactic mesh placement to prevent incisional hernia in laparotomy. Is it time to change practice?

Michael Sugrue^{1,2}, Alison Johnston¹, Saqib Zeeshan¹, Paula Loughlin^{2,3}, Magda Bucholc², Angus Watson^{2,4}

¹Department of Surgery, Letterkenny University Hospital and Donegal Clinical Research Academy, Ireland

TABLE 2. Surgical technique as prevention of incisional hernia

Measuring wound length					
Documenting the suture to wound length	Prophylactic onlay mesh at emergency laparotomy: promising early outcomes with long-acting synthetic resorbable mesh				
Suture to wound length ratio 4: 1	outcomes with long-acting synthetic resorbable mesh				
Use of self-locking sutures	Daniah Alsaadi ,* Ian Stephens,* Lydia O. Simmons,* Magda Bucholc† and Michael Sugrue*‡				
Closure of the fascia in one layer					
Low tension	ANZ J Surg 2022				
Small stitches					

Anaesthesiol Intensive Ther 2019; 51, 3

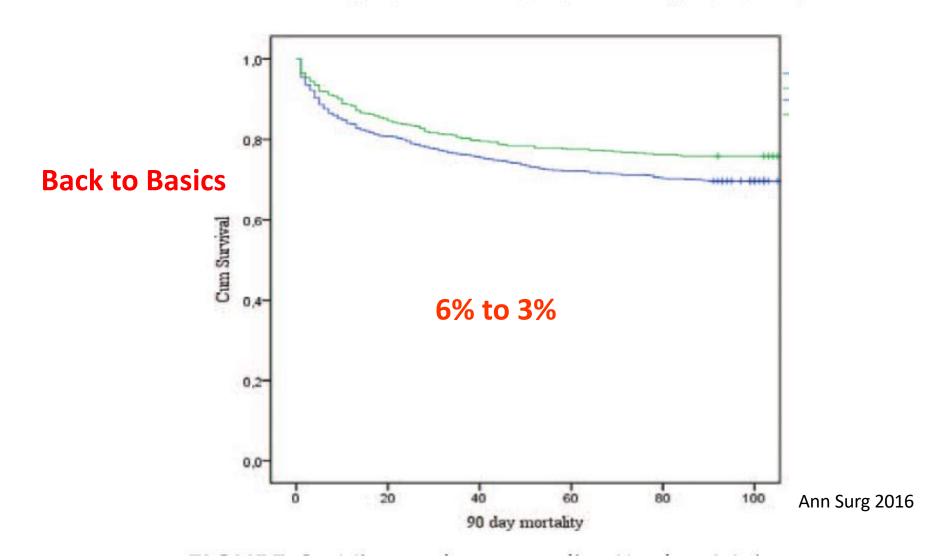
Using a monofilament suture





Reduced Rate of Dehiscence After Implementation of a Standardized Fascial Closure Technique in Patients Undergoing Emergency Laparotomy

Mai-Britt Tolstrup, MD,* Sara Kehlet Watt, MD,† and Ismail Gögenur, MD, DMSc†





Pride in Outcome Clinic Review

Nice outcome Primary
Anastomosis Following LBO with
Sigmoid resection. Lovely incision





Was this preventable?

No mesh used

Yes

It needs a second major operation





EGS Higher Rates of Incisional Hernias

CLINICAL-REGISTRY

Incisional hernia incidence following laparotomy for combat trauma: Investigating 15 years of US war surgery

ORIGINAL ARTICLE

Victor Moas, MD, Susan Eskridge, PhD, Mary Clouser, PhD, Steven Kurapaty, BS, Christopher Dyke, MD, and Jason Souza, MD, Bethesda, Maryland Reduced Rate of Dehiscence After Implementation of a Standardized Fascial Closure Technique in Patients Undergoing Emergency Laparotomy

Mai-Britt Tolstrup, MD, Sara Kehlet Watt, MD, and Ismail Gögenur, MD, DMSc

The American Journal of Surgery (2010) 200, 229-234

The American Journal of Surgery'

Clinical Science

Long term follow up for incisional hernia after severe secondary peritonitis—incidence and risk factors

Mohammed R. Moussavian, M.D., Jochen Schuld, M.D., Daniel Dauer, M.D., Christoph Justinger, M.D., Otto Kollmar, M.D., Martin K. Schilling, M.D., Sven Richter, M.D.* Hernia (2019) 23:341–346 https://doi.org/10.1007/s10029-019-01893-0

ORIGINAL ARTICLE



Reduced rate of incisional hernia after standardized fascial closure in emergency laparotomy

T. Thorup 1 · M.-B. Tolstrup 1 · I. Gögenur 2





REVIEW



Preventing incisional ventral hernias: important for patients but ignored by surgical specialities? A critical review

M. A. Garcia-Urena 100 on behalf of POP (Progress On Prevention) Surgical Group

Received: 31 August 2020 / Accepted: 16 November 2020 / Published online: 4 January 2021 © Springer-Verlag France SAS, part of Springer Nature 2021

Abstract

Purpose Incisional ventral hernias (IHs) are a common complication across all surgical specialities requiring access to the abdomen, pelvis, and retroperitoneum. This public health issue continues to be widely ignored, resulting in appreciable morbidity and expenses. In this critical review, the issue is explored by an interdisciplinary group.

Methods A group of European surgeons encompassing representatives from abdominal wall, vascular, urological, gynecological, colorectal and hepato-pancreatico-biliarysurgery have reviewed the occurrence of His in these disciplines.

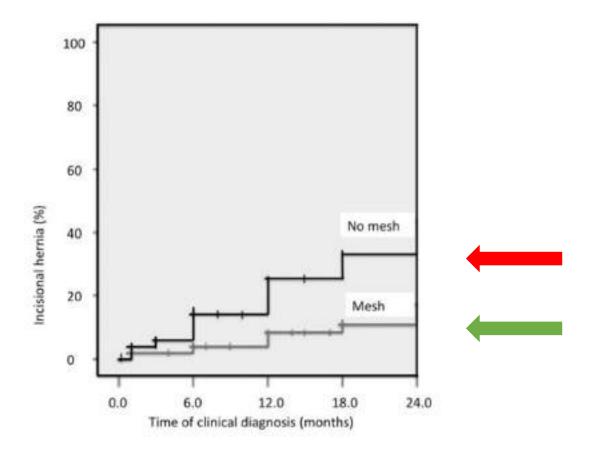
Results Incisional hernias are a major public health issue with appreciable morbidity and cost implications. General surgeons are commonly called upon to repair IHs following an initial operation by others. Measures that may collectively reduce the frequency of IH across specialities include better planning and preparation (e.g. a fit patient, no time pressure, an experienced operator). A minimally invasive technique should be employed where appropriate. Our main recommendations in midline incisions include using the 'small bites' suture technique with a \geq 4:1 suture-to-wound length, and adding prophylactic mesh augmentation in patients more likely to suffer herniation. For off-midline incisions, more research of this problem is essential. Conclusion Meticulous closure of the incision is significant for every patient. Raising awareness of the His is necessary in all surgical disciplines that work withing the abdomen or retroperitoneum. Across all specialties, surgeons should aim for a < 10% IH rate.





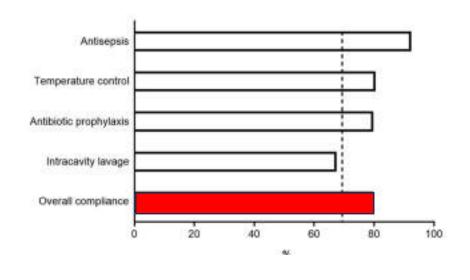
Randomized Controlled Trial of the Use of a Large-pore Polypropylene Mesh to Prevent Incisional Hernia in Colorectal Surgery

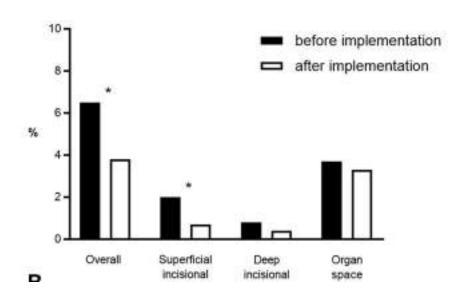
Miguel Ángel Garcia-Ureña, PhD, MD,* Javier López-Monclús, MD,* Luis Alberto Blázquez Hernando, MD,*





Compliance and Outcomes





Implementing a surgical site infection prevention bundle for emergency appendectomy: Worth the effort or waste of time?

Jonas Jurt, MDa, Laura Floquet, MDa, Martin Hübner, MDa, Estelle Moulin, MDb,



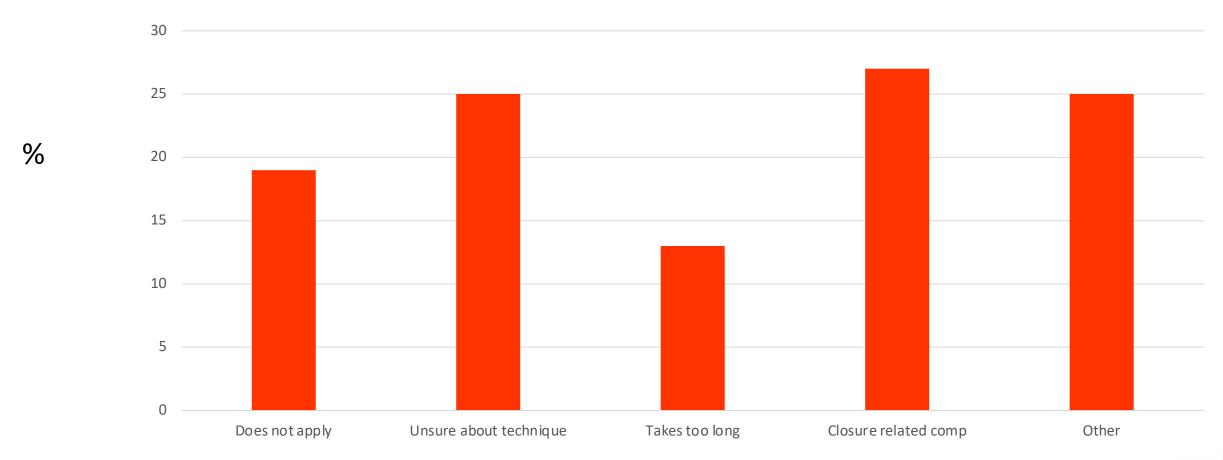


Hernia prevention: practice patterns and surgeons' attitudes about abdominal wall closure and the use of prophylactic mesh

Hernia Feb 2019
479 Surgeon (75% General)

J. P. Fischer¹ · H. W. Harris² · M. López-Cano³ · W. W. Hope⁴

Small Bites Why I don't Practice Fully (76%)



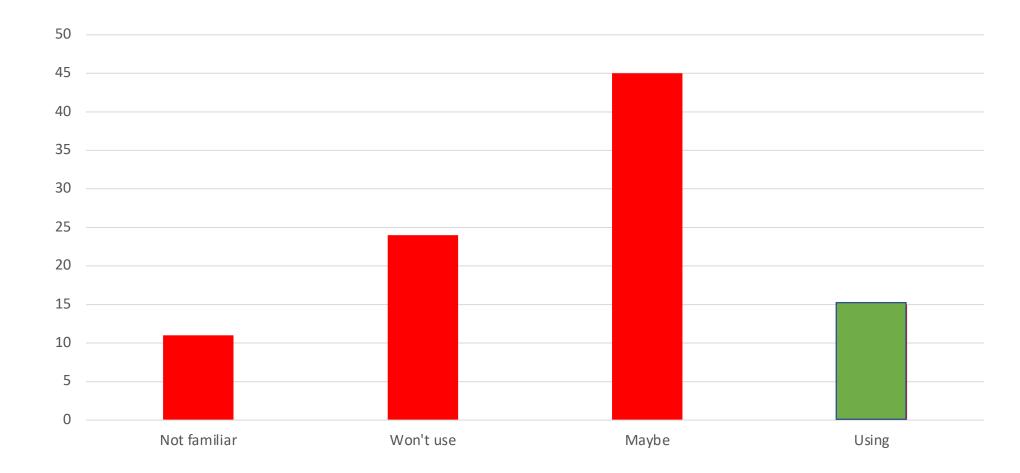


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Current Prophylactic Mesh Practice









All about the Patient
Family and the Team





The abdomen is your book The fascia is your cover The incision is your Signature



Key Points

Abdominal Bundle Concept will improve outcome
Wound complications are reducible (never totally preventable)

If you are not using a wound and abdominal closure bundle, why NOT?





2.01

Emergency Abdominal Surgery Course



Monday 24th June 2024

Rodos Palace Hotel Rhodes Greece





CME 6 credits

Provisional Faculty

Nikos Arkoudis Greece Spiros Amagutos Greece Walt Biffi USA Richard ten Broek Holland Fausto Catena Italy Mircea Chirica France Belinda de Simone France Isidoro Di Carlo Italy Ana Maria Gonzalez Spain Kostas Fortounis Greece Gustavo Fraga Brazil Rifat Latifi USA Rajashekar Mohan India Frank Piscioneri Manos Pikoulis Greace Sandro Rizoli Qatar Michael Sugrue Ireland Maria Stafylidou Greece Vishal Shelat Singapore Pantelis Vassiliu Greece Dieter Weber Australia

19th Student Emergency Abdominal Surgery Course

Sunday January 28th 2024

Venue:

Robert Smith Lecture Hall

St James Hospital Dublin



Great Refresher for Final Med Exams

Taking the Mystique out of Emergency Abdominal Conditions!

Marja Boermeester Netherlands Mary Connolly Dublin Clair Donohue Dublin Louise Flanagan Letterkenny Ana Maria Gonzalez Spain Olga Fagan Dublin John Finnegan Dublin Morad Hameed Canada Laura Kehoe Dublin Angus Lloyd Letterkenny Christian Magutkiewicz UK Isidro Martinez Spain R. Mohan India Ravi Narayanasamy Dublin John Reynolds Dublin Anna Riley UK Shahool Sahobally Dublin Maria Stafylidou Greece Matti Tolonen Finland Michael Sugrue Letterkenny Kevin Van Der Merwe Letterkenny Manyydaz Varzgalis Letterkenny Cheryl Waldron USA John Waldron Dublin

4th Nursing Emergency Abdominal Surgery Course



Thursday 13th June 2024 17:00-21:00

AKISA Building, NKUA

ATTIKON Hospital ATHENS

Approved by Nursing *Midwifery RCSI and NMBI (4CEUs)



Provisional Faculty

Kostas Antonopoulos, Vascular, Athens Nikos Arkoudis Radiologist, Athens Spyros Amaoutos, Surgeon, Sparta Spyridon Christodoulou, Surgeon, Athens Flora Efstathiou, Nurse, Athens Kostas Fortounis, Surgeon, Thessaloniki Jamie Guinan, Nurse, Ireland Panagiotis Kokoropoulos, Surgeon, Athens Christina Kontopoulgu, Radiologist, Athens Andreas Larentzakis, Surgeon, Athens Evangelos Lolis, Surgeon, Crete Thanassis Marinis, Surgeon, Piraeus Giannis Massalis, Surgeon, Nafption Savvas Nikolaou, Radiologist, Canada Ioanna Pozotou, Surgeon, Cyprus Vicky Rapti, Nurse, Athens Anna Riley, Nurse, UK Maria Stafylidou, Gastroenterologist, Thessaloniki lan Stephens, Surgeon, UK Michael Sugrue, Surgeon, Letterkenny, Ireland Vivi Svardagkalou, Nurse, Athens Giorgos Tsolakidis, Intensivist, Athens Pantelis Vassiliu, Surgeon, Athena

7th Advanced

Emergency Abdominal Surgery Course

EASC

Tuesday 25th June 2024

Rodos Palace Hotel Rhodes Greece





Provisional Faculty

Nikos Arkoudis Greece

Spyros Arnaoutos Greece Luca Ansaloni Italy Walt Biffl USA Mark Bowyer USA Fausto Catena Italy Mircea Chirica France Federico Coccolini Italy Isidoro Di Carlo Italy Ana Maria Gonzalez Spain Kostas Fortounis Greece Gustavo Fraga Brazil Rifet Latifi USA Andy Kirkpatrick Canada Ari Leppaniemi Finland Raiashekar Mohan India Emest Moore USA Frank Piscioneri Australia Sandro Rizzoli Oatar Michael Sugrue Ireland Maria Stafylidou Greece Ernest Moore USA Vishal Shelat Singapore Matti Tolonen Finland Pantelis Vassiliu Greece George Velmahos USA Dieter Weber Australia



Emergency Abdominal Surgery Course

Train the Trainer Course

Sunday 23rd June 2024

CME 2 credits

Rhodos Palace Hotel

Rhodes Greece





CME 2 credits

Essential to have undertaken an EASC course previously

Provisional Faculty

Walt Biffi USA
Richard ten Broek Holland
Fausto Catena Italy
Gustavo Fraga Brazil
Ana Maria Gonzalez Spain
Rajashekar Mohan India
Manos Pikoulis Greece
Massimo Sartelli Italy
Sandro Rizoli Qatar
Michael Sugrue Ireland
Ernest Moore USA
Pantells Vassiliu Greece
Dieter Weber Australia

v Emergency Abdominal Surgery Course

Wednesday and Thursday October 6th and 7th 2021

18.00-21.10 (2 a 3hour blocks)

Virtual Zoom Platform CME 6 credits



Provisional Faculty



Emmet Andrews Ireland Kevin Barry Mayo Gary Bass USA Fordia Bolster Ireland Tomasz Banasiewicz Poland Marja Boermeester Holland Simon Cross Ireland Fausto Catena Italy Louise Flanagan Ireland Tina Gaarder Norway Li Hsee New Zealand Paula Loughlin Ireland Valeria Malka Australia Isidro Martinez Spain Carlos Mesquita Portugal Rajashekar Mohan India Shahin Mohseni Sweden

ν Emergency Abdominal Surgery Course

Wednesday and Thursday October 6th and 7th 2021

18.00-21.10 (2 a 3hour blocks)

Virtual Zoom Platform CME 6 credits



Day 1 Wednesday 18.00 - 21.10

18.00 Welcome

18.05 Appendicitis

18.15 Case Scenarios with Faculty

Andrews Boermeester Tolonen Loughlin Walker GSuggie Stephens

Real Patients Real Problems Dealing with;

Appendicitis Scoring Pathways Role of CT v US NOTA



4000 Trained

12 Countries

Tomasz Banasiewicz Poland Marja Boermeester Holland Simon Cross Ireland Fausto Catena Italy Louise Flanagan Ireland Tina Gaarder Norway Li Hisee New Zealand Paula Loughlin Ireland Valeris Mailva Australia Isidro Martinez Spain Carlos Mesquita Portugal Rajashekar Mohan India Shahin Mohseni Sweden

20.15 Case Scenarios with Faculty Mohseni Pereira Vohra Catena Flanagan Bass Mesquita Mohan Bolster

> When to operate When to abort Technical tips for difficult GB

21.00 Short update from industry

21.10 Close

Certification for the course will be given once MCQ's have been completed and following your



Day 2 Thursday 18.00 - 21.10

18.00 Welcome

18.05 Small Bowel Obstruction

18.15 Case Scenarios with Faculty

Gaarder Andrews Vassiliu Marren Skelly Martinez Cross Barry

> SBO Bundle in action When to laparoscope The equipment/approach Traps -Open Surgery

18.50 Large Bowel Obstruction

Banasiewicz Hsee Malka Watson Zeeshan Flanagan Bolster G Sugrue

19:00 Case Scenarios with Faculty

Path to diagnosis
Approach
Problems with Ostomies
When to reverse
Anastomotic leaks

19.45 Acute Mesenteric Ischaemia

20.00 Open Abdomen; When/How to open/close

20.15 Testing Case Scenarios with Faculty

Boermeester Tolonen Watson Zeeshan Haee Vohra Walker Mesquita

Scenario session will test the ability of the faculty to get it all together for the patient.

20.50 Key learning points to transform your EGS care

21.10 Close

Register online Fee 150 €

Places limited-Delivered through Zoom Platform Course no 30 **Wound Bundle**

The Detractors





STUDY PROTOCOL **Open Access**

Negative pressure wound therapy use to decrease surgical nosocomial events in

Murphy Ontario Am Coll Surgeons October 23 2018









Negative pressure wound therapy use to decrease surgical nosocomial events in colorectal resections (NEPTUNE): study



